

REMARKS

Favorable reconsideration and withdrawal of the objections and rejections set forth in the above-mentioned Official Action in view of the foregoing amendments and the following remarks are respectfully requested.

Drawings

Figure 4 is objected to because it is not labeled --PRIOR ART--. As the Examiner recognizes Figure 4 represents “background art”. See for example, page 1, lines 11 through 13 of the specification. However, background art does not necessarily constitute “prior art” as it applies to Title 35 of the United States Code. Accordingly, the Examiner is respectfully requested to reconsider his requirement to label Figure 4 as Prior Art. If the Examiner requires any label for Figure 4, --Background Art-- would be acceptable.

Specification

The specification is objected to because of minor informalities noted by the Examiner. In response, the specification has been amended to attend to any informalities, including those kindly identified by the Examiner. It is respectfully submitted that no new matter has been added.

Claims Status

Claims 1 through 13 remain pending in the application. Claims 1, 5 through 8, 12, and 13 have been amended to even more succinctly define the invention and/or to improve their form. It is respectfully submitted that no new matter has been added. Claims 1 and 8 are the only independent claims pending in the application.

Claim Objection

Claims 1 and 8 are objected to because of the presence of minor informalities.

Claims 1 and 8 have been amended *inter alia* to attend to these informalities as suggested by the Examiner. Again, it is respectfully submitted that no new matter has been added and that the objection has been overcome.

Art Rejections

Claims 1, 2, and 4 through 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2001/0026709 (Hara, et al.).

Claims 8 through 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hara, et al. in view of U.S. Patent No. 6,246,845 (Hosoya, et al.).

Claims 3 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hara, et al. in view of Hosoya, et al. and further in view of U.S. Patent Application Publication No. 2001/0028815 (Sato).

Claims 1 and 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,807,651 (Rimai, et al.) in view of U.S. Patent Application Publication No. 2002/0164177 (Watanabe, et al.).

Claims 8 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,253,038 (Ito, et al.) in view of Watanabe, et al.

The rationale underlying each of the foregoing art rejections is succinctly set forth in the Official Action.

Response to Art Rejections

The rejections are respectfully traversed.

Amended Claim 1 calls for an image forming apparatus that includes an image bearing member bearing an image thereon and a transfer member contacting with the image bearing member in a contact portion. The image on the image bearing member is transferred to a transfer medium in the contact portion by the transfer member. A Young's modulus of the image bearing member is equal to or greater than 2×10^8 [N/m²] and equal to or less than 9×10^9 [N/m²]. A contact pressure between the image bearing member and the transfer member in the contact portion is equal to or greater than 4.0×10^4 [N/m²] and equal to or less than 7.3×10^4 [N/m²].

Amended Claim 1 calls for an image forming apparatus characterized by (i) a Young's modulus and (ii) a contact pressure of the recited parameters.

An air gap formed between a transfer medium and an image bearing member causes uneven image transfer. The claimed contact pressure not only reduces the formation of air gaps but also eliminates the cause of hollow characters.

Hara, et al. discloses an image forming apparatus including a semi-conductive belt having a Young's modulus as noted by the Examiner. As further noted by the Examiner, Hara, et al. does not disclose or suggest the claimed feature of a contact pressure between an image bearing member and a transfer member in a contact portion being equal to or greater than 4.0×10^4 [N/m²] and equal to or less than 7.3×10^4 [N/m²]. Accordingly, the Examiner looks to Hosoya, et al. for allegedly teaching this claimed feature.

Hosoya, et al. discloses a contact pressure between a pressure roller 25 and a backup roller 24. In Hosoya, et al., the contact pressure is preferably about 500 to 10,000 g/cm² (4.9×10^4 to 9.8×10^5 [N/m²]) and more preferably about 1500 to 6000 g/cm² (1.47×10^5 to 5.88×10^5 [N/m²]). See column 7, lines 35 through 40.

It is respectfully submitted that Hara, et al. and Hosoya, et al., whether taken individually or in combination do not disclose or suggest a contact pressure between an image bearing member and a transfer member in a contact portion being equal to or greater than 4.0×10^4 [N/m²] and equal to or less than 7.3×10^4 [N/m²].

Rimai, et al. discloses an electrostatographic apparatus, wherein a contact pressure is present between an image bearing member and a transfer member. In Rimai, et al., a Young's modulus of the image bearing member should be greater than 10GPa (10×10^9 [N/m²]). Accordingly, Rimai, et al. fails to disclose or suggest the feature of a Young's modulus of the image bearing member being equal to or greater than 2×10^8 [N/m²] and equal to or less than 9×10^9 [N/m²] as recited in amended Claim 1.

It is respectfully submitted that amended Claim 1 is also allowable over Rimai, et al. and Watanabe, et al. whether taken individually or in combination.

Amended Claim 8 calls for an image forming apparatus that includes an image bearing member bearing an image thereon; and a transfer member contacting with the image bearing portion in a contact portion. The image on the image bearing member is transferred to a transfer material in the contact portion by the transfer member. A surface resistivity of the image bearing member is equal to or greater than 1×10^8 N/m² and equal to or less than 1×10^{15} Ω/□. The contact pressure between the image bearing member and the transfer member in the contact portion is equal to or greater than 4.0×10^4 [Ω] and equal to or less than 7.3×10^4 [N/m²].

Amended Claim 8 calls for an image forming apparatus characterized by a (i) surface resistivity, and (ii) a contact pressure of the recited parameters.

As above-noted, an air gap is formed between a transfer medium and an image bearing member. This results in an uneven image transfer. As a result of the above-noted claimed features (i) and (ii), an unevenness on the transfer medium and the surface resistivity of an image bearing member can be set within a predetermined range. This reduces a difference of the electric fields between sections having an air gap and sections without an air gap and prevents the occurrence of unevenness of image transfer caused by an air gap.

As recognized above by the Examiner with respect to Claim 1, Hara, et al. does not disclose or suggest the claimed contact pressure and looks to Hosoya, et al. for this feature. As above-noted, it is respectfully submitted that Hosoya, et al. does not remedy the deficiencies of Hara, et al. in this regard.

Hara, et al. also does not disclose or suggest a surface resistivity of an image bearing member as recited in amended Claim 8.

Accordingly, it is respectfully submitted that amended Claim 8 is also allowable over Hara, et al. and Hosoya, et al. whether taken individually or in combination.

Ito, et al. does not disclose a surface resistivity of an image bearing member, but rather discloses a volume resistivity.

Watanabe, et al. is cited for disclosing a contact pressure on the claimed range. However, Watanabe, et al. discloses a line pressure. Watanabe, et al. does not disclose or suggest a contact pressure. It is respectfully submitted that Watanabe, et al. does not remedy the above-noted deficiencies of Ito, et al.

Accordingly, it is respectfully submitted that amended Claim 8 is also allowable over Ito, et al. and Watanabe, et al. whether taken individually or in combination.

It is also respectfully submitted that the combination rejections are not well founded. The Examiner has provided a *rationalization* for combining the teachings of the cited art based on the benefits of doing so. A combination rejection is proper only when there is some suggestion or motivation in the cited art *per se* to cause one having ordinary skill in the art to combine the teachings of the cited art. There is nothing in the cited art which supports the position that it can be combined in the manner suggested. Even if the art could be so combined, the mere fact that the art can be combined is not sufficient if there is no suggestion in the art that such the combination is desirable. For example, see ACS Hospital Systems, Inc. v. Montefiore Hospital, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

In view of the foregoing, it is respectfully submitted that amended Claims 1 and 8 are allowable over the cited art whether taken individually or in combination.

Dependent Claims

Claims 2 through 7 and 9 through 13 depend either directly or indirectly from one of Claims 1 and 8.

Regarding Claims 3 and 10, the Examiner asserts that Sato discloses a single layer belt, the photosensitive belt has multiple layers with a photosensitive layer and conductive layer. However, Sato merely discloses that the photosensitive layer is a single layer. In the present invention, the belt as an image bearing member is a single layer. Therefore, Sato, et al. fails to disclose or suggest the feature in Claims 3 and 10 of the present invention.

The Examiner asserts that Hara, et al. discloses a surface resistivity of an image bearing member. However, Hara, et al. merely discloses a volume resistivity not a surface

resistivity. Therefore, Hara, et al. fails to disclose the range of surface resistivity as recited in Claim 6.

It is respectfully submitted that the dependent claims are allowable by virtue of their dependency and in their own right for further defining Applicants' invention. Individual consideration of the dependent claims is respectfully requested.

Closing Comments

It is respectfully submitted that the claims on file are allowable over the art of record and that the application is in condition for allowance. Favorable reconsideration and early passage to issue of the present application are earnestly solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our New York office at the address shown below.

Respectfully submitted,



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